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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,057	02/18/2004	Peter R.C. Gascoyne	UTXC:789US	8378

32425 7590 03/02/2007
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EXAMINER

WATTS, ALLISON LEIGH

ART UNIT	PAPER NUMBER
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1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/781,057	Applicant(s) GASCOYNE ET AL.	
	Examiner Allison L. Watts	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/21/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 6-8, 10-11, 13 and 18-22 are rejected under 35 U.S.C. 102(e) as being anticipated by either Fuhr et al. or Benecke et al.

As to Claims 1-3, 6-7, 13, and 18-22, Fuhr et al. disclose a system and method comprising a fluid flow channel for a fluid containing a suspension of particles, a plurality of electrodes coupled to the fluid flow channel, where the electrodes are able to become energized with an AC signal to focus the particles within first and second narrow regions of the fluid flow using dielectrophoresis forces, and an optical and impedance detector for observing the particles after they have been focused, including deflecting the particles based on feedback from the detector (Figures 6 and 14-15; column 3, line 44 through column 4, line 41; column 7, lines 42-56; column 11, lines 49-55; column 12, line 66 through column 13, line 12; column 15, lines 33-39).

Benecke et al. disclose a system and method comprising a fluid flow channel for a fluid containing a suspension of particles, a plurality of electrodes coupled to the fluid

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flow channel, where the electrodes are able to become energized with an AC signal to focus the particles within a narrow region of the fluid flow using dielectrophoresis forces, and an optical and impedance detector for observing the particles after they have been focused, including deflecting the particles based on feedback from the detector (Figures 2-3 and 5-7; column 2, line 62 through column 3, line 2; column 2, lines 32-38; column 3, lines 54-59).

As to Claims 8 and 10-11, Fuhr et al. disclose an apparatus comprising electrodes coupled to opposing walls of a fluid flow channel, the electrodes being configured to generate negative dielectrophoretic forces that focus flowing particles to the center of the fluid flow channel (Figures 6 and 12; column 3, line 44 through column 4, line 41; column 7, lines 42-56; column 11, lines 49-55; column 12, line 66 through column 13, line 12; column 15, lines 33-39).

Benecke et al. disclose an apparatus comprising electrodes coupled to opposing walls of a fluid flow channel, the electrodes being configured to generate negative dielectrophoretic forces that focus flowing particles to the center of the fluid flow channel (Figures 2 and 7; column 3, line 66 through column 4, line 3; column 7, lines 40-47).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Fuhr et al. or Benecke et al. in view of either Zborowski et al. or Batha et al.

Fuhr et al. or Benecke et al. do not disclose using an annular electrode configuration.

Zborowski et al. disclose using an annular electrode configuration to manipulate the position of suspended particles in a fluid flow channel (Abstract; Figure 7; column 3, line 39 through column 4, line 27; column 5, line 47 through column 6, line 34).

Batha et al. disclose using various electrode configurations, including an annular electrode configuration (Abstract; column 9, lines 43-51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the electrodes disclosed by either Fuhr et al. or Benecke et al. by using the annular electrodes disclosed by either Zborowski et al. or Batha et al. because annular electrodes are able to be used for dielectrophoresis applications to influence the position of particles in a flow channel, and therefore annular electrodes could be substituted for flat electrodes and perform the same function.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Fuhr et al. or Benecke et al. in view of Fuhr.

Fuhr et al. or Benecke et al. do not disclose electrodes comprising an octupole configuration.

Fuhr disclose electrodes comprising an octupole configuration (Figure 1; column 4, line 64 through column 5, line 10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the electrodes of Fuhr et al. or Benecke et al. by using the octupole configured electrodes as disclosed by Fuhr because the octupole configuration is another way of centering particles in a fluid.

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8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Fuhr et al. or Benecke et al. in view of Fuhr and Batha et al.

Fuhr et al. or Benecke et al. do not disclose electrodes comprising an octupole configuration.

Fuhr disclose electrodes comprising an octupole configuration (Figure 1; column 4, line 64 through column 5, line 10).

Batha et al. disclose using various electrode configurations, including an annular electrode configuration (Abstract; Figure 21; column 9, lines 43-51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the electrodes of Fuhr et al. or Benecke et al. by using the octupole configured electrodes as disclosed by Fuhr because the octupole configuration is another way of centering particles in a fluid, and it would be necessary to position the octupole electrodes along the length of the flow channel in order to direct flowing particles to the center of the flow channel, as disclosed by Batha et al., so that they will flow in a straight line through the flow channel, as disclosed by Fuhr et al. and Benecke et al.

9. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Fuhr et al. or Benecke et al. in view of Huang et al.

Fuhr et al. or Benecke et al. do not disclose lysing particles.

Huang et al. disclose lysing particles based on characteristics of the particles, where the lysing comprises electroporation by applying a signal in order to either

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introduce an agent or cause the cell to release the crude lysate which contains proteins, nucleic acids, and cellular components (paragraphs 0002, 0006, 0008-0009 and 0102).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the lysing steps of Huang et al. for the system of Fuhr et al. or Benecke et al. because it enables further particle analysis and manipulation, such as introducing an agent into a particle or gathering intercellular components of interest.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 7070684 B1, US 6294063 B1, US 5948328 A, US 20050040044 A1, US 20030159943 A2, US 20030102854 A1, US 6801311 B1, US 6492175 B1.

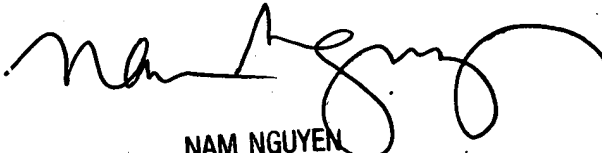
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allison L. Watts whose telephone number is (571) 272-6640. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ALW
2/22/2007



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